

LEWIS COUNTY PUBLIC WORKS ENGINEERING AND TRAFFIC INVESTIGATION REPORT

IN THE MATTER OF: Evaluation of the existing speed limit on a portion of Hwy 603 @ the Winlock, Washington city limits M.P. 13.10 to M.P. 13.42 after construction.

REASON FOR INVESTIGATION: Initiated by CRP-2144 and a change in scope granted by CRAB, and a letter of request by Lewis County Engineer, Tim Elsea.

COUNTY ROAD: Hwy 603 (93006) M.P. 13.10 to M.P. 13.42

TO: Tim Elsea and Road File.

FINDINGS:

- a.) **Current Speed Limit :** [50 MPH]
- b.) **Physical Features:** Hwy 603 is a Rural Major Collector in southern Lewis County north of the City of Winlock, Washington. The posted speed limit is fifty miles per hour (50 MPH). After the upcoming construction project is completed on Hwy 603, the horizontal curve located at milepost 13.21 will remain at a design speed of forty miles per hour (40 MPH), per AASHTO design standards and a deviation granted by CRAB. Shortly after this curve the road leads into the City of Winlock where the speed limit becomes twenty five miles per hour (25 MPH).
- After the upcoming construction is completed the pavement width will be 34' with two 11' lanes 6' shoulders.
This portion of roadway accommodates approximately 12 county road approaches.
- c.) **Accident Characteristics:** No accident data was compiled for this investigation since the road will be newly constructed and the agreement with CRAB to establish a thirty five miles per hour (35 MPH) speed zone.
- d.) **Remarks / Recommendations:** With the Design Evaluation Report (attached) of newly constructed Hwy 603 project, along with the change of scope request by Tim Elsea (attached), the approval letter by the CRAB board (attached), and the reduction in speed to twenty five miles per hour (25 MPH) at Winlock city limits, it is my recommendation that the speed limit on said portion of Hwy 603 should be reduced from fifty miles per hour (50 MPH) to thirty five miles per hour (35 MPH) when construction of CRP-2144 is completed and signs are installed.

e.) Attachments:

- a. Request for change of scope by Tim Elsea
- b. Design Evaluation Report dated July 9, 2013
- c. Approval letter from the County Road Administration Board (CRAB)

Tim Elsea P.E.
Lewis County Traffic Engineer

DRAFT



Lewis County Department of Public Works

Timothy R. Eisea, PE, Director / County Engineer

Rodney Lakey, PE, Assistant County Engineer

July 18, 2013

Randy Hart, P.E.
County Road Administration Board
2404 Chandler CT SW, Suite 240
Olympia, WA 98504-0913

Re: Request for change in Scope – Hwy 603, Project 2108-01

Dear Randy:

This letter is provided to request a change in scope for the previously CRAB approved Hwy 603 Project in Lewis County. This change in scope is proposed for the design speed of the horizontal curve located at milepost 13.21. The RAP Worksheet for this project shows this curve ball bank speed as 40 mph, with a proposed speed of 50 mph on the original RAP application worksheet. The curve is located in a section of the roadway adjacent to the City of Winlock where the speed limit changes from 50 mph to 25 mph. Additionally, City of Winlock Urban Growth Area extends beyond this curve and property development is more intense with tighter residential home spacing and more driveway approaches near the city limits. Property owners at the location of the curve in question have been very rigid and negotiations have come to an impasse for proposed property purchase. Given the dense residential development, major difficulties in right-of-way purchase and the proximity of the curve to a 25 mph speed zone, Lewis County proposes to reconstruct the curve at the existing alignment (40 mph), with no decrease in the proposed width of the overall project (50 mph design speed). Future speed posting through this curve would be 35 mph to provide a logical deceleration / acceleration zone coming into or leaving the City of Winlock.

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Steve Skinner, Manager

The change in scope would lower the RAP Worksheet score from 50.07 to 48.40, but does not affect project placement on the SW 07-09 Array. Given the difficulties concerning right of way purchase and the proximity of the curve to the City of Winlock and a reduced speed zone of 25 mph, the proposed change in scope would allow Lewis County to reconstruct the curve on the current alignment and avoid potential construction delays. The remainder of the project would be constructed as originally proposed.

Construction effort required to widen Hwy 603 to 34-ft will be similar for both horizontal alignment options. Keeping the existing 40 mph horizontal alignment (change in scope requested) would not require additional clearing & grubbing or imported structural fill material. Alternatively, constructing the originally submitted 50 mph horizontal curve over partial new ground would require removal and reclamation of the old road bed. Therefore, construction cost savings associated with this change in scope request are negligible. Right of way costs are not eligible for RATA reimbursement in the SW Region. The estimated total project cost is \$2,480,000, with \$1,355,000 (54.6%) funded by Lewis County. Given the negligible construction cost difference and significant overall project costs, Lewis County would request to retain the full RATA funding of \$1,125,000 for this project.

If you have any questions concerning this request please contact me at (360)740-2697 or Tim.Elsea@lewiscountywa.gov.

Sincerely,



Tim Elsea, P.E.
Director/County Engineer

cc: CRP 2144 Project File

WASHINGTON STATE

County Road Administration Board

2404 Chandler Court SW Suite #240 Olympia, WA 98504-0913 www.crab.wa.gov
360/753-5989 FAX 360/586-0386



August 1, 2013

Tim Elsea, PE, Director
Lewis County Public Works
2025 NE Kresky Avenue
Chehalis, WA 98532-2626

Dear Tim,

The CRABoard, on August 1, 2013, approved your July 18, 2013 request for a scope change on your RAP funded Highway 603 (RAP # 2108-01) project. The scope change allows the county to retain the existing 40 MPH design speed on the curve located at milepost 13.21. A CRAB/County contract amendment to that effect is attached.

As there is a 45 calendar signing allowance, please have your commissioner sign all three unaltered originals of the amendment as soon as possible. Send all three signed originals to CRAB and we will return two of them to you after the CRAB Director adds his signature.

If you have any questions please feel free to call me at 360-350-6081.

Sincerely,

A handwritten signature in cursive script that reads "Randy Hart".

Randy Hart, Grant Programs Manager,
County Road Administration Board

Attached: revised Highway 603 CRAB/County contract

cc: Project file

STATE OF WASHINGTON - COUNTY ROAD ADMINISTRATION BOARD
 RURAL ARTERIAL PROGRAM
 PROJECT AGREEMENT FOR CONSTRUCTION PROPOSAL

AMENDMENT NO. 1

Submitting County: Lewis

Project Number: 2108-01

Date Approved: 04/17/2008

Road Number(s)	Road Name(s)	BMP(s)	EMP(s)	Segment #
93006	HIGHWAY 603 - 2	11.700	13.420	1

This is Amendment No. 1 to the above described Project Agreement, between the County of Lewis, hereinafter the "County" and the State of Washington County Road Administration Board, hereinafter the "CRABoard."

WHEREAS, the COUNTY and CRABoard desire to amend the original Project Agreement to allow a change in project scope under the conditions described in WAC 136-165-030.

NOW, THEREFORE, pursuant to chapter 36.79 RCW and in consideration of the terms, conditions, covenants, and performance contained herein, or attached and incorporated and made a part hereof,

IT IS MUTUALLY AGREED AS FOLLOWS:

1. The following new language is added as section 7 to the Project Agreement:

Design Speed for the curve located at milepost 13.21 will remain unimproved at 40 MPH.

2. All other terms and conditions of the original Project Agreement shall remain in full force and effect except as modified by this Amendment No. 1.

IN WITNESS WHEREOF, the PARTIES hereto have executed this AMENDMENT No. 1 as of the PARTY's date last signed below.

COUNTY ROAD ADMINISTRATION BOARD:

Lewis COUNTY:

By: _____

By: _____

Date: _____

Date: _____

REQUEST FOR CHANGE IN SCOPE - RAP FUNDED PROJECT

COUNTY ROAD ADMINISTRATION BOARD -

(If requesting additional RATA funds, increase request form must also be attached)

Insert information in shaded areas.

>> **Lewis County requests a change in scope to the RATA funded project listed below:**

ROAD NAME: **Hwy 603** RAP PROJ NO. **2108-01**
 BEGIN M.P. **11.70** END M.P. **13.42**
 RATA approved: **04/17/2008** Project RATA funds paid to the County: \$ **99,555.46**
 Proposed milepost limits **11.70** to **13.42**

>> **The proposed scope change will revise the prospectus items and rating points as follows:**

	Road conditions affected by Scope Change		Rating points affected by Scope Change	
	Prospectus:	Proposed	Original	Proposed
Project Length				
Design Speed				
Accident History				
Traffic Volume				
Roadway Width				
Lane / Pavement Width				
Shoulder Width				
Vertical Alignment / Grade				
Horizontal Alignment	50 mph	40 mph (1 curve)	50.07	48.40
Structural Section				

(Visual structural or surface condition points will be re-scored by CRABstaff)

Revised prospectus **Worksheets** and **Vicinity Map** are: attached to be sent to CRAB

>> **The county requests this scope change because:**

The curve is located in a section of the roadway adjacent to the City of Winlock where the speed limit changes from 50 mph to 25 mph. Additionally, City of Winlock Urban Growth Area extends beyond this curve and property development is more intense with tighter residential home spacing and more driveway approaches near the city limits. Property owners at the location of the curve in question have been very rigid and negotiations have come to an impasse for proposed property purchase. Given dense residential development, the major difficulties in right-of-way purchase and the proximity of the curve to a 25 mph speed zone, Lewis County proposes to reconstruct this horizontal curve at the existing alignment (40 mph), with no decrease in the proposed width of the overall project (50 mph design speed). Future speed posting through this curve area would be 35 mph to provide a logical deceleration / acceleration zone coming into or leaving the City of Winlock.

(attach additional sheets if necessary)

>> **The scope changed project is or will be funded from the following secured or potential sources:**

Name of funding source:	Amount:	Secured?
RATA	\$ 1,125,000.00	Yes
County	\$ 1,355,000.00	Yes
Total cost	\$ 2,480,000.00	

>> **Scope change request submitted by:** Jim Gillett **on:** 7/17/13
 Public Works Director or Engineer date



Lewis County Department of Public Works

Timothy R. Elsea, PE, Director / County Engineer

Rodney Lakey, PE, Assistant County Engineer

Design Evaluation Report July 9, 2013

Agency: Lewis County Public Works
Project Title: Highway 603 Stabilization Project
Project No.: CRP 2144

Lewis County was previously awarded RAP grant funding to complete corridor improvements on Highway 603 between mileposts 11.70 and 13.42. Planned corridor improvements include a structural cross-section of CSBC, CSTC and HMA, minor horizontal and vertical alignment improvements, increased width, and other safety improvements. The original RAP grant application included upgrading all curves to a 50 MPH design speed to meet AASHTO standards for level terrain. The design requires the acquisition of Right-of-Way at the MP 13.21 curve to meet the 50 MPH design speed horizontal standards.

Property owners at the location of the MP 13.21 curve in question have been very rigid and negotiations have come to an impasse for proposed right-of-way purchase. Given the dense residential development, major difficulties in right-of-way purchase and the proximity of the curve to a 25 mph speed zone entering the City of Winlock immediately south of this curve, Lewis County proposes to reconstruct the curve at the existing alignment (40 mph). All other proposed width, structural, and safety improvements will be constructed as proposed in the RAP grant application. Future speed posting through this curve would be 35 mph to provide a logical transitional speed zone coming into or leaving the City of Winlock.

In accordance with Chapter 42: City and County Design Standards in the WSDOT Local Agency Guidelines, this report documents and addresses Lewis County's evaluation of the curve at MP 13.21. The project, as originally proposed, involves approximately 20% vertical and horizontal alignment changes. Therefore, this project would be classified as a "3R" project in accordance with the definitions in 42.42 of the City and County Design Standards. The design matrix found in Table 1.1 of the City and County Design Standards for "3R" projects, requires the local agency to evaluate horizontal alignments to a Design Level A (AASHTO "A Policy on Geometric Design of Highways and Streets").

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Steve Skinner, Manager

CURVE AT MP 13.21

Existing Geometric Conditions

The existing paved roadway width is 26' with 1' unpaved shoulders for a total roadway width of 28'. The Ball Bank speed for said curve is 40 MPH. This section of Hwy 603 supports an average daily traffic load of 1,160 vehicles per day.

Proposed Geometric Conditions

Widen and pave the roadway to 34' total width, two 11' lanes and 6' shoulders. Construct existing curve to a 40 MPH ASSHTO design standard. Provide guardrail and other safety devices as necessary.

Accident History

Two injury accidents have occurred at this curve location within the past last 10 years. The first accident was a collision with a fixed object (off the road) while exceeding the stated speed limit. The second, a collision with a vehicle entering from a driveway, a citation was issued for driving too fast for winter conditions. No other accidents have been reported in this area within the past 10 years.

Accident Projections with Proposed Conditions

No increases in accidents are projected as a result of the proposed 40 MPH design, since the existing curve currently ball banks at a 40 MPH curve. A reduction in accidents and severity would be expected due to the addition of shoulders and the reduction in speed limit.

Cost Comparison

The Construction cost difference would be negligible. There would be a slight reduction in clearing and grubbing, embankment, and structural fill. Right-of-Way costs would be eliminated for this curve because it will be constructed in the same alignment. The true saving will be avoiding escalating construction costs due to the delay for Right-of-Way acquisition/condemnation and the potential loss of RAP funding.

Discussion

The curve at MP 13.21 is located in the City of Winlock's Urban Growth Area. As such, future development is directed to occur within the vicinity of the curve at MP 13.21. There are five driveways in the vicinity of said curve. The density will increase as it further develops. A reduction of the speed limit to 35 MPH as a transition zone to the 25 MPH zone in the City of Winlock is further justified by the conflicts created by the approaches. The proposed 40 MPH design for the MP 13.21 curve would exceed the post construction speed limit.

The delays to this project, due to the resistance from the property owner for Right-of-Way acquisition, jeopardize the timely completion of this project as well as the RAP funding source. By constructing the MP 13.21 curve to a 40 MPH design, the need to acquire Right-of-Way in this area would be eliminated.

Therefore, after agency evaluation to ASSHTO standards, the MP 13.21 will be designed to a 40 MPH standard.

Certification: I have reviewed and approved this Design Evaluation Report and believe it to be in the best public interest.

7/30/13

Date



Tim Elsea, P.E., Lewis County Engineer

LEWIS COUNTY PUBLIC WORKS ENGINEERING AND TRAFFIC INVESTIGATION REPORT

IN THE MATTER OF: Evaluation of the existing speed limit on a portion of Buckley Road @ M.P. 0.562 to M.P. 1.006.

REASON FOR INVESTIGATION: Initiated by the County Engineer per a request by a Lewis County Resident.

COUNTY ROAD: Buckley Road (#55510) M.P. 0.562 to M.P. 1.006

TO: Tim Elsea and Road File.

FINDINGS:

a.) Current Speed Limit : [50 MPH]
85% Prevailing Vehicle Speed: [37.2 MPH]
Average Daily Traffic: [117.8]

b.) Physical Features:

Buckley road is a Rural Local Access in southern Lewis County north of the City of Toledo. The posted speed limit is 50 mph. This portion of Buckley road is straight and has no undulating grade. The geometrics of the roadway within this .444 mile portion of the road includes no horizontal or vertical curves.

The pavement width is 18' with no shoulders. This portion was resurfaced in 1980 with BST. The end of the county road leads to a private drive maintained by the Department of Fish and Wildlife to access a public boat launch on the Cowlitz River. There are 2 private roads (Helen Ln & Homer Ln) taking direct access off of this portion of the road that serve 17 parcels and 2 residences past the county road portion.

c.) Accident Characteristics: There have been 3 reported accidents along this portion of Buckley Road in the last 18+ years. None of those accidents involved injury, nor were any fatal. Please see the attach Collision Summary.

d.) Remarks / Recommendations:

a. With the analysis of Buckley road along with the USLIMITS2 Speed Zoning Report, it is my recommended that the speed limit on said portion of Buckley road should be reduced from a non-posted 50 mph to 35 mph.

e.) Attachments:

- a. 18+ year Collision Summary from Lewis County Mobility Database
- b. 2015 Buckley road Traffic Study data
- c. Buckley Road GIS map
- d. USLIMITS2 Speed Zoning Report



Tim Elsea P.E.
Lewis County Traffic Engineer

A>B : South
 B>A : North
 MP. : 0.652

Site: Buckley Rd
 Monday, 12/28/2015 11:00 AM -
 Thursday, 12/31/2015 10:15 AM

Volume Grand Totals

Average Hourly Volumes

	A>B	B>A	Combined
12:00 AM	0.3	0.0	0.3
1:00 AM	0.0	0.0	0.0
2:00 AM	0.7	0.7	1.3
3:00 AM	0.0	0.3	0.3
4:00 AM	0.3	1.0	1.3
5:00 AM	0.0	0.7	0.7
6:00 AM	0.3	1.3	1.7
7:00 AM	0.0	2.7	2.7
8:00 AM	0.3	3.7	4.0
9:00 AM	3.3	4.3	7.7
10:00 AM	5.0	7.5	12.5
11:00 AM	2.7	4.3	7.0
12:00 PM	4.3	4.7	9.0
1:00 PM	6.3	3.3	9.7
2:00 PM	6.0	5.7	11.7
3:00 PM	6.7	5.7	12.3
4:00 PM	5.0	1.0	6.0
5:00 PM	4.7	1.7	6.3
6:00 PM	5.3	3.0	8.3
7:00 PM	3.3	1.7	5.0
8:00 PM	2.0	3.3	5.3
9:00 PM	0.7	1.0	1.7
10:00 PM	1.3	1.0	2.3
11:00 PM	0.7	0.0	0.7
Average Daily Traffic (ADT)	59.3	58.5	117.8

Volume Totals

	A>B	B>A	Combined
	173	168	341
	50.7 %	49.3 %	

A>B : South
 B>A : North
 MP : 0.652

Classification Grand Totals

Interval Start	Hourly Averages													
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
12:00 AM	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	1.3	0.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	1.3	0.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	0.7	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	1.7	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	2.7	0.0	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	4.0	0.0	2.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	7.7	0.0	4.7	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	12.5	0.0	5.0	6.5	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
11:00 AM	7.0	0.0	3.3	3.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	9.0	0.0	6.0	2.3	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	9.7	0.0	6.3	2.0	0.0	1.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2:00 PM	11.7	0.0	6.0	5.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	12.3	0.0	7.7	5.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	6.0	0.0	4.0	1.3	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	6.3	0.0	3.7	1.7	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	8.3	0.0	6.0	1.7	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	5.0	0.0	4.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	5.3	0.0	4.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	1.7	0.0	1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	2.3	0.0	2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.7	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	117.8	0.0	69.3	38.8	0.0	8.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0

Study Grand Totals

	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Combined	341	0	203	110	0	26	0	0	2	0	0	0	0	0
A>B	173	0	59.5%	32.3%	0	7.6%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
B>A	168	0	58.4%	32.9%	0	8.1%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
		0	60.7%	31.5%	0	7.1%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%

A>B : South
 B>A : North
 MP : 0.652

Speed Grand Totals

mph	Hourly Averages										Total	Average (Mean)	Minimum	Maximum	Pace Range	
	0 - <15	15 - <20	20 - <25	25 - <30	30 - <35	35 - <40	40 - <45	45 - <50	50 - <55	55 - <60						60 - <65
12:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	117.8	6.3	23.8	37.3	24.8	17.0	6.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average (Mean) 29.6 mph Minimum 14.2 mph Maximum 56.2 mph Pace Range 23.5 - 33.5 mph 191 vehicles (56.0%)																
Percentile Speeds (mph) 10% 21.4 15% 22.9 50% 28.5 85% 37.2 90% 38.3																
Speeds Exceeded 25 mph 73.3% (250) 35 mph 21.4% (73) 45 mph 1.8% (6) 55 mph 0.3% (1) 65 mph 0.0% (0) 75 mph 0.0% (0)																
Study Grand Totals																
Total	341	19	71	107	70	49	18	5	0	1	0	0	0	0	0	0
Combined	0.3%	5.6%	20.8%	31.4%	20.5%	14.4%	5.3%	1.5%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
A>B	1	11	38	61	32	24	6	0	0	0	0	0	0	0	0	0
	0.6%	6.4%	22.0%	35.3%	18.5%	13.9%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B>A	0	8	33	46	38	25	12	5	0	1	0	0	0	0	0	0
	0.0%	4.8%	19.6%	27.4%	22.6%	14.9%	7.1%	3.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Collision List

55510 BUCKLEY RD	Jur	FFC
0.687 CLAS Collision	01/26/2010 - E041150 - Prop Dam Only	5 9
0.980 Crash	10/02/1998 - C40897 - Prop Dam Only	5 9
1.006 CLAS Collision	07/15/2005 - 1741298 - Prop Dam Only	5 9

USLIMITS2 Speed Zoning Report

Project Name: Buckley Road

Analyst: Ray Shipman

Date: 01-26-2016

Basic Project Information

Project Number: 55510
Route Name: Buckley
State: Washington
County: Lewis County
City: Rural/Other
Route Type: Road Section in Developed Area
Route Status: Existing

Roadway Information

Section Length: .444 mile(s)
Statutory Speed Limit: 50 mph
Adverse Alignment: No
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Residential-Collector
Number of Driveways: 2
Number of Signals: 0

Crash Data Information

Crash Data Years: 18.83
Crash AADT: 118 veh/day
Total Number of Crashes: 3
Total Number of Injury Crashes: 0
Section Crash Rate: 833 per 100 MVM
Section Injury Crash Rate: 0 per 100 MVM
Crash Rate Average for Similar Roads: 366
Injury Rate Average for Similar Roads: 101

Traffic Information

85th Percentile Speed: 37 mph
50th Percentile Speed: 29 mph
AADT: 118 veh/day
On Street Parking and Usage: Not High
Pedestrian / Bicyclist Activity: Not High

Recommended Speed Limit: 35

Note: The section crash rate of 833 per 100 MVM is more than 30 percent above the average for similar roads (366) but below the critical rate (1327). A comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out.



LEWIS COUNTY PUBLIC WORKS ENGINEERING AND TRAFFIC INVESTIGATION REPORT

IN THE MATTER OF: Evaluation of the existing speed limit on a portion of Salzer Valley Road from Centralia Alpha Road @ M.P. 1.313 to M.P. 3.476.

REASON FOR INVESTIGATION: Initiated by the County Engineer per a request by a Lewis County Resident.

COUNTY ROAD: Salzer Valley Road (#15051) M.P. 1.313 to M.P. 3.476

TO: Tim Elsea and Road File.

FINDINGS:

- a.) **Current Speed Limit :** [50 MPH]
85% Prevailing Vehicle Speed M.P. 1.390 [50.8 MPH]
2.000 [56.9 MPH]
2.887 [51.9 MPH]
3.450 [41.8 MPH]
Average Daily Traffic: [783]

- b.) **Physical Features:** Salzer Valley Road is a Rural Minor Collector in northwestern Lewis County east of the City of Centralia. West of Centralia Alpha Road, Salzer Valley has a posted speed limit of 35 mph to the Centralia City Limits at M.P. 0.246. Between the intersection of Salzer Valley and Centralia Alpha Road (M.P. 1.313) and M.P. 3.476 the posted speed limit is 50 mph. This portion of Salzer Valley road is winding and has an undulating grade. The geometrics of the roadway within this 2.163 mile portion of the road include ten horizontal curves and seven vertical curves. Many of these horizontal and vertical curves overlap each other and 3 of them are posted with advisory speeds of 40 mph or less.

The pavement width is 26' and shoulders are typically one to two feet in width. The road is constructed near the bottom of a natural sloping hillside that falls from the north to the south. The north side of the road typically has a shallow ditch with periodic culverts conveying the stormwater runoff under the road and releasing it to the south. The south side of the road is an embankment that ranges in height from 2 to 20 feet with slopes typically 4:1 or flatter.

There are 22 residences taking direct access off of this portion of the road and over 30 others that are served off of connecting private and public roads.

- c.) **Accident Characteristics:** There have been 13 reported accidents along this portion of Salzer Valley Road in the last 10 years. Six of those accidents involved injury and none were fatal. Please see the attach Collision Summary.

- d.) **Remarks / Recommendations:** An analysis of the first three horizontal curves east of Centralia Alpha Road indicate a recommended speed of 45 mph. However, the 2011 edition of A Policy on Geometric Design of Streets and Highways published by AASHTO comments on combinations of horizontal and vertical alignments in Section 3.5.2:

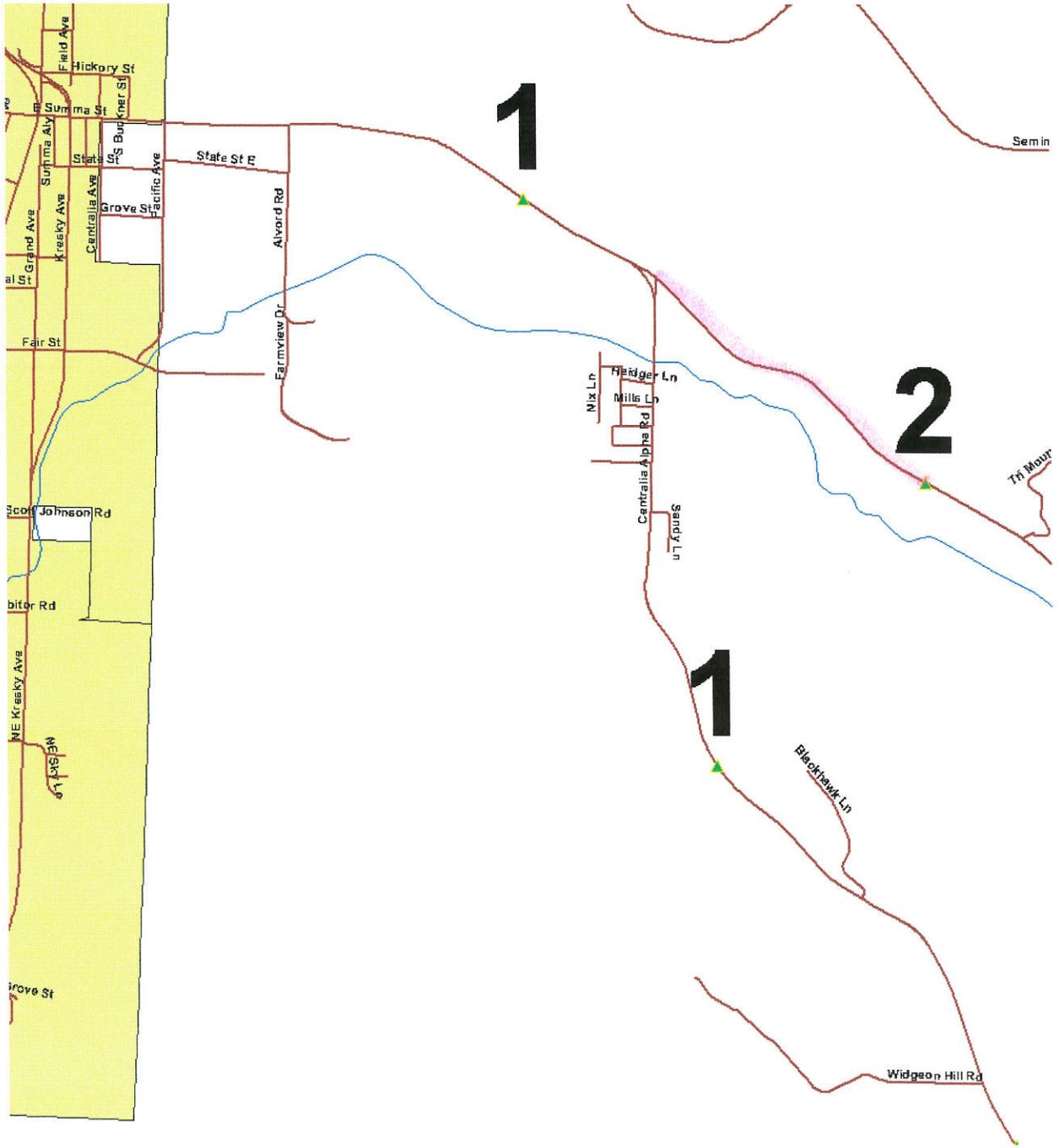
Sharp vertical curvature should not be introduced at or near the top of a pronounced crest vertical curve. This condition is undesirable because the driver may not perceive the horizontal change in alignment, especially at night...Somewhat related to the preceding guideline, sharp horizontal curvature should not be introduced near the bottom of a steep grade approaching or near the low point of a pronounced sag vertical curve.

These combinations of horizontal and vertical alignments along with an 85% speed of 41.8 mph, a winding portion of roadway support a recommendation to reduce the speed limit to 40 mph in the section of Salzer Valley Road from 1.313 to 2.000. A FHWA USLIMITS2 speed zone model determination has also been conducted and agrees with a reduction to 40 mph.

- e.) **Attachments:**

- a. 10 year Collision Summary from Lewis County Mobility Database
- b. 2015 and 2016 Salzer Valley Road Traffic Study data
- c. Salzer Valley Road Curve Analysis
- d. USLIMITS2 Speed Zoning Report

Tim Elsea P.E.
Lewis County Traffic Engineer



Lewis County Public Works

A>B : East
 B>A : West
 MP : 1.390

Site: Salzer Valley Rd
 Monday, 08/10/2015 10:15 AM -
 Friday, 08/14/2015 8:45 AM

Volume Grand Totals

Average Hourly Volumes

	A>B	B>A	Combined
12:00 AM	1.3	1.3	2.5
1:00 AM	0.0	0.0	0.0
2:00 AM	0.8	1.8	2.5
3:00 AM	1.3	1.8	3.0
4:00 AM	5.5	11.8	17.3
5:00 AM	6.8	22.5	29.3
6:00 AM	6.0	33.0	39.0
7:00 AM	11.0	27.5	38.5
8:00 AM	22.0	26.7	48.7
9:00 AM	19.3	29.0	48.3
10:00 AM	23.0	30.0	53.0
11:00 AM	22.5	26.0	48.5
12:00 PM	21.8	21.5	43.3
1:00 PM	28.3	19.5	47.8
2:00 PM	26.8	23.8	50.5
3:00 PM	36.3	26.5	62.8
4:00 PM	45.5	25.5	71.0
5:00 PM	27.0	20.5	47.5
6:00 PM	26.5	18.0	44.5
7:00 PM	22.8	9.5	32.3
8:00 PM	18.8	7.8	26.5
9:00 PM	8.0	6.5	14.5
10:00 PM	5.0	3.3	8.3
11:00 PM	3.5	0.3	3.8
Average Daily Traffic (ADT)	389.3	393.7	783.0

#1705

Volume Totals

A>B	B>A	Combined
1515	1527	3042
49.8 %	50.2 %	

A>B : East
 B>A : West
 MP : 1.390

Speed Grand Totals

mph	Hourly Averages											Daily Average	
	0 - <15	15 - <20	20 - <25	25 - <30	30 - <35	35 - <40	40 - <45	45 - <50	50 - <55	55 - <60	60 - <65		65 - <70
Total	2.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Daily Average		Average (Mean)		Minimum		Maximum		Range						
785.0	2.8	43.7 mph	10.5 mph	2.3	5.8	24.5	72.4 mph	38.7 - 48.7 mph	1667 vehicles (55.3 %)					
Percentile Speeds (mph)		10%	50%	85%	90%									
		34.6	44.1	50.8	52.2									
Speeds Exceeded		25 mph	35 mph	45 mph	55 mph	65 mph	75 mph							
		98.6 % (2532)	89.0 % (2255)	43.5 % (1297)	4.5 % (153)	0.3 % (9)	0.0 % (0)							
Hourly Grand Totals		0 - <15	15 - <20	20 - <25	25 - <30	30 - <35	35 - <40	40 - <45	45 - <50	50 - <55	55 - <60	60 - <65	65 - <70	70 - <200
Total		10	8	25	93	191	466	892	754	410	100	24	8	1
A>B		0.3 %	0.3 %	0.8 %	3.1 %	6.4 %	15.6 %	29.8 %	25.3 %	18.7 %	3.4 %	0.8 %	0.3 %	0.0 %
B>A		0.5 %	0.2 %	1.5 %	4.3 %	6.4 %	13.3 %	30.3 %	25.8 %	13.1 %	3.5 %	0.9 %	0.2 %	0.0 %
Combined		0.2 %	0.5 %	0.2 %	1.8 %	6.4 %	17.8 %	29.5 %	24.8 %	14.4 %	3.2 %	0.7 %	0.3 %	0.1 %

A>B : East
 B>A : West
 NP : 1-390

Classification Grand Totals

Interval Start	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	Hourly Averages Combined						<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
						2 Axle 6 Tlr	3 Axle Single	4 Axle Single	4 Axle Single	5 Axle Double	6 Axle Multi						
12:00 AM	2.5	0.0	2.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	2.5	0.0	1.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	3.0	0.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	17.3	0.3	7.8	3.3	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	29.3	0.0	17.5	6.3	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	39.0	0.3	23.5	10.0	1.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	38.5	0.3	21.8	12.0	0.3	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	48.7	0.0	28.0	16.7	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	48.3	0.0	31.0	13.7	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	53.8	0.0	34.0	13.3	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	48.5	1.5	28.0	12.8	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	43.3	0.8	26.5	11.3	0.5	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	47.8	0.3	28.3	13.0	0.3	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	50.5	0.5	31.0	13.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	62.8	0.8	37.3	16.8	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	71.0	1.3	43.3	19.8	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	47.5	1.0	29.0	12.5	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	44.5	0.5	31.0	8.3	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	32.3	0.5	22.3	7.5	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	26.5	0.3	18.8	6.3	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	14.5	0.0	10.0	3.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	8.3	0.0	7.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	3.8	0.0	3.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	783.0	8.3	484.5	200.7	2.8	71.8	3.8	0.8	0.8	6.9	2.4	1.0	0.0	0.0	0.0	0.0	0.0

Study Grand Totals	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	Study Grand Totals						<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
						2 Axle 6 Tlr	3 Axle Single	4 Axle Single	4 Axle Single	5 Axle Double	6 Axle Multi						
Combined	2982	33	1845	759	11	277	14	3	27	9	4	0	0	0	0	0	0
A>B	1493	10	918	390	8	139	7	0	13	6	2	0	0	0	0	0	0
B>A	1489	23	927	369	3	138	7	3	14	3	2	0	0	0	0	0	0
		1.1 %	61.9 %	25.5 %	0.4 %	9.3 %	0.5 %	0.1 %	0.9 %	0.3 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
		0.7 %	61.5 %	26.1 %	0.5 %	9.3 %	0.5 %	0.0 %	0.9 %	0.4 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
		1.5 %	62.3 %	24.8 %	0.2 %	9.3 %	0.5 %	0.2 %	0.9 %	0.2 %	0.1 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Lewis County Public Works

A>B : East
 B>A : West
 MP. : 2.000

Site: Saizer Valley Rd
 Monday, 02/29/2016 12:45 PM -
 Monday, 03/07/2016 12:00 PM

Volume Grand Totals

Average Hourly Volumes

	A>B	B>A	Combined
12:00 AM	3.7	2.1	5.9
1:00 AM	1.0	0.6	1.6
2:00 AM	0.6	1.0	1.6
3:00 AM	0.4	0.7	1.1
4:00 AM	0.4	1.3	1.7
5:00 AM	1.1	2.9	4.0
6:00 AM	0.6	10.0	10.6
7:00 AM	3.4	19.0	22.4
8:00 AM	5.7	29.6	35.3
9:00 AM	12.7	22.1	34.9
10:00 AM	15.0	22.4	37.4
11:00 AM	16.0	24.6	40.6
12:00 PM	20.2	21.8	42.0
1:00 PM	23.4	22.9	46.3
2:00 PM	24.4	26.1	50.6
3:00 PM	26.1	25.9	52.0
4:00 PM	31.9	22.4	54.3
5:00 PM	36.1	27.6	63.7
6:00 PM	34.4	23.7	58.1
7:00 PM	23.3	13.9	37.1
8:00 PM	19.6	9.6	29.1
9:00 PM	14.0	6.9	20.9
10:00 PM	11.0	5.9	16.9
11:00 PM	6.7	2.6	9.3
Average Daily Traffic (ADT)	331.9	345.4	677.3

Volume Totals

	A>B	B>A	Combined
	2310	2402	4712
	49.0 %	51.0 %	

A>B : East
 B>A : West
 NP. : 2,000

Site: Salzer Valley Rd
 Monday, 02/29/2016 1:00 PM -
 Monday, 03/07/2016 12:00 PM

Classification Grand Totals

Interval Start	Hourly Averages											Daily Average		
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double		<6 Axle Multi	6 Axle Multi
12:00 AM	5.9	0.0	3.9	1.6	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	1.6	0.0	1.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	1.6	0.0	0.1	0.7	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	1.1	0.0	0.4	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	1.7	0.0	1.1	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	4.0	0.0	1.7	1.6	0.0	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0
6:00 AM	10.6	0.0	5.1	2.6	0.0	2.6	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
7:00 AM	22.4	0.0	12.7	5.6	0.0	3.7	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
8:00 AM	35.3	0.0	18.3	10.0	1.6	4.7	0.0	0.0	0.3	0.0	0.1	0.0	0.3	0.0
9:00 AM	34.9	0.0	20.1	8.9	0.0	4.9	0.4	0.0	0.4	0.1	0.0	0.0	0.0	0.0
10:00 AM	37.4	0.0	19.0	12.0	0.1	5.7	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.1
11:00 AM	40.6	0.0	18.3	12.3	0.6	7.7	0.3	0.0	1.0	0.9	0.4	0.0	0.0	0.0
12:00 PM	42.0	0.2	22.5	12.3	0.2	6.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.2
1:00 PM	46.3	0.1	24.6	13.4	0.0	7.1	0.6	0.0	0.4	0.0	0.0	0.0	0.0	0.0
2:00 PM	50.6	0.9	28.1	12.7	0.4	7.1	0.3	0.0	0.4	0.1	0.3	0.0	0.0	0.1
3:00 PM	52.0	0.1	29.1	14.1	0.3	7.3	0.6	0.0	0.1	0.0	0.1	0.0	0.0	0.1
4:00 PM	54.3	0.1	30.0	15.6	0.1	7.6	0.1	0.0	0.3	0.4	0.0	0.0	0.0	0.1
5:00 PM	63.7	0.6	36.9	16.7	0.0	8.7	0.1	0.0	0.4	0.0	0.1	0.0	0.0	0.0
6:00 PM	58.1	0.1	34.3	15.9	0.3	6.7	0.0	0.0	0.7	0.0	0.1	0.0	0.0	0.0
7:00 PM	37.1	0.0	23.6	9.1	0.0	4.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
8:00 PM	29.1	0.0	18.9	8.1	0.0	2.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
9:00 PM	20.9	0.0	12.9	6.3	0.0	1.1	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0
10:00 PM	16.9	0.0	11.3	4.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
11:00 PM	9.3	0.0	5.6	3.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	677.3	2.2	379.5	187.8	3.6	91.3	2.9	0.0	5.6	0.7	2.0	0.1	0.9	0.7

Study Grand Totals

	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Combined	4699	15	2634	1302	25	633	20	0	39	5	14	1	6	5
A>B	2303	8	1387	601	9	259	12	0	18	2	4	0	3	0
B>A	2396	7	1247	701	16	374	8	0	21	3	10	1	3	5
		0.3 %	56.1 %	27.7 %	0.5 %	13.5 %	0.4 %	0.0 %	0.8 %	0.1 %	0.3 %	0.0 %	0.1 %	0.1 %
		0.3 %	60.2 %	26.1 %	0.4 %	11.2 %	0.5 %	0.0 %	0.8 %	0.1 %	0.2 %	0.0 %	0.1 %	0.0 %
		0.3 %	52.0 %	29.3 %	0.7 %	15.6 %	0.3 %	0.0 %	0.9 %	0.1 %	0.4 %	0.0 %	0.1 %	0.2 %

Speed Grand Totals

A>B : East
 B>A : West
 MP : 2.000

mph	Hourly Averages Combined										Daily Average		
	0- <15	15- <20	20- <25	25- <30	30- <35	35- <40	40- <45	45- <50	50- <55	55- <60		60- <65	65- <70
Total	5.9	0.0	0.0	0.0	0.1	0.3	1.1	1.7	1.7	0.4	0.3	0.1	0.0
12:00 AM	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.1	0.1	0.0	0.1	0.0
1:00 AM	1.6	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.3	0.1	0.0	0.1	0.0
2:00 AM	1.6	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.0	0.0	0.0	0.0
3:00 AM	1.1	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.4	0.1	0.0	0.0	0.0
4:00 AM	1.7	0.0	0.0	0.1	0.0	0.0	0.3	0.7	0.4	0.1	0.0	0.0	0.0
5:00 AM	4.0	0.0	0.1	0.0	0.3	0.0	0.7	0.1	1.0	0.6	0.3	0.1	0.7
6:00 AM	10.6	0.0	0.0	0.0	0.4	0.3	0.3	1.9	1.6	2.4	1.3	1.4	1.0
7:00 AM	22.4	0.0	0.0	0.1	0.4	0.3	2.1	4.7	6.1	4.3	1.7	0.4	0.0
8:00 AM	35.3	0.0	0.0	0.1	0.1	0.6	3.7	7.0	8.3	7.0	4.7	2.7	1.0
9:00 AM	34.9	0.0	0.0	0.1	0.3	0.3	5.1	10.6	8.7	5.0	1.9	0.3	0.1
10:00 AM	37.4	0.1	0.0	0.3	0.9	3.1	7.1	9.4	7.3	5.9	2.0	1.0	0.3
11:00 AM	40.6	0.0	0.0	0.1	0.7	2.0	7.0	12.0	10.3	5.9	1.4	0.6	0.4
12:00 PM	42.0	0.0	0.0	0.0	0.3	2.5	7.2	11.2	11.0	5.5	2.5	1.3	0.5
1:00 PM	45.3	0.0	0.0	0.0	0.4	2.4	9.1	14.3	11.6	6.1	1.7	0.6	0.0
2:00 PM	50.6	0.0	0.0	0.1	1.3	4.3	10.1	13.0	13.1	5.1	1.9	0.7	0.1
3:00 PM	52.0	0.4	0.4	0.6	2.1	4.0	8.0	13.4	13.6	5.1	2.1	0.7	0.3
4:00 PM	54.3	0.1	0.0	0.0	0.6	5.4	11.0	16.1	13.1	5.7	1.6	0.4	0.0
5:00 PM	63.7	0.0	0.1	0.3	1.4	3.1	9.7	17.7	17.1	8.7	4.1	0.4	0.7
6:00 PM	58.1	0.1	0.0	0.0	0.3	3.9	8.4	14.0	19.0	8.1	2.9	1.0	0.4
7:00 PM	37.1	0.0	0.0	0.0	0.1	2.7	8.6	11.6	8.9	2.7	1.7	0.9	0.0
8:00 PM	29.1	0.0	0.0	0.0	0.7	1.1	4.4	10.7	6.7	3.3	1.9	0.0	0.3
9:00 PM	20.9	0.0	0.0	0.0	0.6	1.7	3.6	7.3	5.1	2.1	0.4	0.0	0.0
10:00 PM	16.9	0.0	0.0	0.0	0.4	1.9	3.9	5.1	3.4	1.1	0.4	0.3	0.1
11:00 PM	9.3	0.0	0.0	0.0	0.3	0.0	1.9	2.9	3.0	0.9	0.1	0.1	0.0
Daily Average	677.3	0.9	0.6	2.6	12.0	43.6	114.6	186.7	172.0	86.5	34.2	15.0	6.1

Average (Mean) 49.5 mph Minimum 11.4 mph Maximum 86.9 mph Pace Range 44.2 - 54.2 mph 2498 vehicles (53.2 %)

Percentile Speeds (mph) 10% 40.4 50% 49.4 85% 56.9 90% 58.9

Speeds Exceeded 25 mph 99.4 % (4671) 35 mph 97.3 % (4570) 45 mph 73.9 % (3472) 55 mph 20.9 % (983) 65 mph 3.1 % (146) 75 mph 0.3 % (13)

Study Grand Totals

mph	Hourly Averages Combined										Daily Average		
	0- <15	15- <20	20- <25	25- <30	30- <35	35- <40	40- <45	45- <50	50- <55	55- <60		60- <65	65- <70
Total	6	4	18	17	84	303	795	1296	1193	600	237	104	42
Combined	0.1 %	0.1 %	0.4 %	0.4 %	1.8 %	6.4 %	16.9 %	27.5 %	25.4 %	12.8 %	5.0 %	2.2 %	0.9 %
A>B	3	0	12	7	47	174	458	730	575	211	62	17	7
B>A	3	4	6	10	37	129	337	566	618	389	175	87	35
	0.1 %	0.2 %	0.3 %	0.4 %	1.5 %	5.4 %	14.1 %	23.6 %	25.8 %	16.2 %	7.3 %	3.6 %	1.5 %

Lewis County Public Works

A>B : East
 B>A : West
 MP. : 2.887

Site: Saizer Valley Rd
 Monday, 02/29/2016 11:30 AM -
 Monday, 03/07/2016 11:00 AM

Volume Grand Totals

Average Hourly Volumes

	A>B	B>A	Combined
12:00 AM	0.7	0.4	1.1
1:00 AM	0.3	1.0	1.3
2:00 AM	0.4	0.6	1.0
3:00 AM	0.4	1.1	1.6
4:00 AM	0.9	2.7	3.6
5:00 AM	0.6	6.1	6.7
6:00 AM	3.6	11.6	15.1
7:00 AM	3.6	19.4	23.0
8:00 AM	6.3	12.1	18.4
9:00 AM	8.0	14.0	22.0
10:00 AM	12.0	15.7	27.7
11:00 AM	13.8	16.3	30.2
12:00 PM	16.1	15.6	31.7
1:00 PM	16.0	17.9	33.9
2:00 PM	15.6	17.0	32.6
3:00 PM	23.6	16.0	39.6
4:00 PM	20.6	17.9	38.4
5:00 PM	21.0	14.3	35.3
6:00 PM	13.7	8.4	22.1
7:00 PM	11.0	4.3	15.3
8:00 PM	8.3	4.4	12.7
9:00 PM	6.3	4.1	10.4
10:00 PM	3.9	2.0	5.9
11:00 PM	2.6	1.6	4.1
Average Daily Traffic (ADT)	209.1	224.6	433.7

Volume Totals

	A>B	B>A	Combined
	1461	1567	3028
	48.2 %	51.8 %	

Classification Grand Totals

Interval Start	Hourly Averages Combined													
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
12:00 AM	1.1	0.0	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	1.3	0.0	0.0	0.6	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	1.0	0.0	0.4	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	1.6	0.0	1.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	3.6	0.0	1.6	1.3	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
5:00 AM	6.7	0.0	3.0	2.1	0.0	1.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1
6:00 AM	15.1	0.0	9.1	3.4	0.0	2.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
7:00 AM	23.0	0.0	11.9	5.9	0.1	4.4	0.0	0.4	0.0	0.0	0.0	0.0	0.3	0.0
8:00 AM	18.4	0.0	11.0	4.6	0.0	2.1	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0
9:00 AM	22.0	0.0	12.3	7.4	0.0	2.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
10:00 AM	27.7	0.0	13.6	8.1	0.4	4.3	0.1	0.9	0.0	0.0	0.3	0.0	0.0	0.0
11:00 AM	30.2	0.0	16.0	7.3	0.0	3.8	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	31.7	0.3	17.9	7.7	0.0	5.1	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	33.9	0.9	20.3	7.6	0.3	3.9	0.3	0.3	0.1	0.0	0.0	0.0	0.1	0.1
2:00 PM	32.6	0.1	20.3	7.6	0.0	3.4	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
3:00 PM	39.6	0.3	24.1	8.7	0.0	5.4	0.0	0.4	0.6	0.0	0.0	0.0	0.0	0.0
4:00 PM	38.4	0.6	21.9	11.3	0.1	4.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
5:00 PM	35.3	0.1	22.3	8.4	0.0	4.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0
6:00 PM	22.1	0.0	14.6	4.4	0.0	2.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	15.3	0.0	10.1	4.1	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	12.7	0.0	7.9	3.7	0.0	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
9:00 PM	10.4	0.0	6.7	2.6	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	5.9	0.0	3.9	1.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	4.1	0.0	2.7	1.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	433.7	2.3	255.1	110.9	1.0	53.8	2.8	4.2	1.0	1.0	1.0	0.1	0.9	0.6

Category	Study Grand Totals													
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Combined	3006	16	1768	769	7	373	19	0	29	7	7	1	6	4
		0.5 %	58.8 %	25.6 %	0.2 %	12.4 %	0.6 %	0.0 %	1.0 %	0.2 %	0.2 %	0.0 %	0.2 %	0.1 %
A>B	1450	8	879	341	7	180	14	0	14	2	1	1	2	1
		0.6 %	60.6 %	23.5 %	0.5 %	12.4 %	1.0 %	0.0 %	1.0 %	0.1 %	0.1 %	0.1 %	0.1 %	0.1 %
B>A	1556	8	889	428	0	193	5	0	15	5	6	0	4	3
		0.5 %	57.1 %	27.5 %	0.0 %	12.4 %	0.3 %	0.0 %	1.0 %	0.3 %	0.4 %	0.0 %	0.3 %	0.2 %

A>B : East
 B>A : West
 MP. : 2.887

Speed Grand Totals

mph	Hourly Averages Combined											Daily Average		
	Total	0- <15	15- <20	20- <25	25- <30	30- <35	35- <40	40- <45	45- <50	50- <55	55- <60		60- <65	65- <70
12:00 AM	1.1	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0
1:00 AM	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	0.0	0.0
2:00 AM	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0
3:00 AM	1.6	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.3	0.1	0.0	0.0	0.0	0.0
4:00 AM	3.6	0.0	0.0	0.0	0.4	0.3	0.3	0.4	0.6	0.3	0.3	0.1	0.4	0.1
5:00 AM	6.7	0.0	0.0	0.0	0.0	0.3	1.0	1.3	1.6	1.7	0.7	0.1	0.0	0.0
6:00 AM	15.1	0.0	0.0	0.0	0.0	0.7	2.3	4.4	3.6	3.4	0.7	0.0	0.0	0.0
7:00 AM	23.0	0.0	0.0	0.0	0.0	0.1	2.9	6.0	5.6	3.9	3.4	0.7	0.3	0.0
8:00 AM	18.4	0.0	0.0	0.0	0.1	0.6	3.1	4.9	4.4	2.0	2.0	1.0	0.0	0.0
9:00 AM	22.0	0.0	0.0	0.0	0.0	0.9	2.7	6.1	6.6	3.9	3.4	0.4	0.0	0.0
10:00 AM	27.7	0.0	0.3	0.3	0.4	1.3	4.3	6.3	8.1	4.7	1.3	0.7	0.0	0.0
11:00 AM	30.2	0.0	0.0	0.2	0.3	0.7	3.2	8.2	10.7	4.0	2.2	0.7	0.2	0.0
12:00 PM	31.7	0.0	0.0	0.0	0.4	1.4	5.9	8.7	9.3	5.3	0.7	0.0	0.0	0.0
1:00 PM	33.9	0.0	0.0	0.3	0.3	1.6	6.4	10.7	8.6	4.7	0.9	0.4	0.0	0.0
2:00 PM	32.6	0.1	0.1	0.0	0.7	1.0	5.8	8.3	9.3	5.9	1.1	0.3	0.0	0.1
3:00 PM	39.6	0.0	0.0	0.0	0.6	2.4	7.1	11.0	13.4	2.9	1.4	0.3	0.4	0.0
4:00 PM	38.4	0.0	0.0	0.0	0.6	2.1	5.9	9.9	10.9	2.7	0.4	0.3	0.1	0.1
5:00 PM	35.3	0.0	0.0	0.0	0.3	1.3	5.3	7.6	10.9	7.1	1.9	0.6	0.1	0.3
6:00 PM	22.1	0.0	0.0	0.0	0.1	1.6	2.6	6.7	7.7	2.3	0.6	0.4	0.1	0.0
7:00 PM	15.3	0.0	0.0	0.0	0.3	0.4	1.4	5.7	4.9	1.3	1.3	0.0	0.0	0.0
8:00 PM	12.7	0.0	0.0	0.0	0.3	0.6	2.3	4.3	3.3	1.4	0.3	0.3	0.1	0.0
9:00 PM	10.4	0.0	0.0	0.0	0.1	0.4	2.3	4.4	2.0	0.7	0.0	0.3	0.1	0.0
10:00 PM	5.9	0.0	0.0	0.0	0.1	0.1	0.9	2.1	1.1	1.1	0.3	0.0	0.0	0.0
11:00 PM	4.1	0.0	0.0	0.0	0.1	0.1	0.9	1.1	1.3	0.4	0.0	0.1	0.0	0.0
Daily Average	433.7	0.1	0.6	0.9	5.2	18.5	66.7	119.9	124.8	63.9	23.2	7.0	2.3	0.7
Average (Mean) 45.3 mph Minimum 13.2 mph Maximum 81.7 mph Pace Range 40.2 - 50.2 mph 1,707 vehicles (56.8%)														
Percentile Speeds (mph) 100% 37.1 50% 45.2 90% 53.7														
Speeds Exceeded 25 mph (2995) 99.6% 35 mph (2830) 94.1% 45 mph (1535) 51.1% 55 mph (229) 7.6% 65 mph (21) 0.7% 75 mph (2) 0.1%														
Study Grand Totals														
Total	3006	1	4	6	36	129	464	831	863	443	160	48	16	5
Combined	3006	0.0%	0.1%	0.2%	1.2%	4.3%	15.4%	27.6%	28.7%	14.7%	5.3%	1.6%	0.5%	0.2%
A>B	1450	0.0%	0.1%	0.3%	0.7%	3.2%	15.0%	26.3%	31.4%	15.0%	4.3%	1.2%	0.3%	0.1%
B>A	1556	0.1%	0.1%	0.1%	1.7%	5.3%	15.8%	27.1%	26.2%	14.5%	6.2%	1.9%	0.7%	0.3%

A>B : East
 B>A : West
 MP : 3.480

Site: Balzer Valley Rd
 Monday, 03/16/2015 11:00 AM -
 Thursday, 03/19/2015 9:45 AM

Volume Grand Totals

Average Hourly Volumes

	A>B	B>A	Combined
12:00 AM	0.7	0.0	0.7
1:00 AM	0.0	0.0	0.0
2:00 AM	0.0	0.3	0.3
3:00 AM	0.0	4.3	4.3
4:00 AM	0.3	6.0	6.3
5:00 AM	4.3	9.7	14.0
6:00 AM	2.3	10.0	12.3
7:00 AM	5.0	15.3	20.3
8:00 AM	7.7	8.0	15.7
9:00 AM	7.0	15.0	22.0
10:00 AM	10.5	8.5	19.0
11:00 AM	8.7	11.7	20.3
12:00 PM	14.0	14.7	28.7
1:00 PM	10.0	14.0	24.0
2:00 PM	14.0	8.7	22.7
3:00 PM	19.0	7.7	26.7
4:00 PM	18.0	8.0	26.0
5:00 PM	11.7	8.3	20.0
6:00 PM	6.3	5.0	11.3
7:00 PM	7.7	4.3	12.0
8:00 PM	5.3	2.0	7.3
9:00 PM	1.0	1.0	2.0
10:00 PM	2.3	1.0	3.3
11:00 PM	2.0	0.3	2.3
Average Daily Traffic (ADT)	157.8	163.8	321.7

Volume Totals

A>B	B>A	Combined
461	477	938
49.1 %	50.9 %	

A>B
 B>A
 MP

Classification Grand Totals

Interval Start	Hourly Averages											Daily Average		
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double		<6 Axle Multi	6 Axle Multi
12:00 AM	0.7	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	4.3	0.0	3.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	6.3	0.0	3.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	14.0	0.0	6.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	12.3	0.0	7.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	20.3	0.0	12.3	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	15.7	0.0	5.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	22.0	0.0	12.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	19.0	0.0	8.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	20.3	0.0	9.3	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	28.7	0.3	12.7	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	24.0	0.0	15.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	22.7	0.0	14.9	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	26.7	0.0	11.3	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	26.0	0.0	15.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	20.0	0.0	7.7	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	11.3	0.0	7.7	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	12.0	0.0	5.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	7.3	0.0	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	2.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	3.3	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	2.3	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	321.7	1.0	177.2	89.3	1.3	43.8	2.3	0.7	4.3	0.5	1.2	0.0	0.0	0.0

Category	Study Grand Totals													
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Combined	924	3	511	253	4	128	7	2	12	1	3	0	0	0
A>B	456	2	247	129	1	63	5	1	7	0	1	0	0	0
B>A	468	1	264	124	3	65	2	1	5	1	2	0	0	0
		0.3 %	53.3 %	27.4 %	0.4 %	13.8 %	0.8 %	0.2 %	1.3 %	0.1 %	0.3 %	0.0 %	0.0 %	0.0 %
		0.4 %	54.2 %	28.3 %	0.2 %	13.8 %	1.1 %	0.2 %	1.5 %	0.0 %	0.2 %	0.0 %	0.0 %	0.0 %
		0.2 %	56.4 %	26.5 %	0.6 %	13.9 %	0.4 %	0.2 %	1.1 %	0.2 %	0.4 %	0.0 %	0.0 %	0.0 %

USLIMITS2 Speed Zoning Report

Project Name: 2015 Salzer Speed Study

Analyst: Erik Martin

Date: 09-18-2015

Basic Project Information

Project Number: SS15-02
Route Name: Salzer Valley Rd
From: MP 1.313
To: MP 3.476
State: Washington
County: Lewis County
City: Rural
Route Type: Road Section in Undeveloped Area
Route Status: Existing

Crash Data Information

Crash Data Years: 10.08
Crash AADT: 783 veh/day
Total Number of Crashes: 13
Total Number of Injury Crashes: 6
Section Crash Rate: 209 per 100 MVM
Section Injury Crash Rate: 96 per 100 MVM
Crash Rate Average for Similar Roads: 232
Injury Rate Average for Similar Roads: 84

Roadway Information

Section Length: 2.16 mile(s)
Statutory Speed Limit: 50 mph
Adverse Alignment: Yes
Divided/Undivided: Undivided
Number of Lanes: 2
Roadside Hazard Rating: 5
Transition Zone: No

Traffic Information

85th Percentile Speed: 41.8 mph
50th Percentile Speed: 36.9 mph
AADT: 783 veh/day

Project Description: Speed limit evaluation for a portion of Salzer Valley Rd MP 1.313 to 3.476

Recommended Speed Limit:



Note: Sections with adverse alignments may need specific 'advisory speed warnings' which may be different from the general speed limit for the section. See [Procedures for Setting Advisory Speeds on Curves](#), Publication No. FHWA-SA-11-22, June 2011, for more guidance.

Collision Summary

Rd #	MP	Rd Name	Report #	Date	ADT	Sev	# Veh	# Inj	# Fatal	Collision Type	Unit 1 CC	Weather	Light
91007	0.895	SALZER VALLEY RD	1544650	03/13/2005	2109	2	2	3	0	One car entering driveway access	Exceeding Reas. Safe Speed	Clear or Partly Cloudy	Daylight
91007	0.059	SALZER VALLEY RD	C648189	04/29/2005	2150	2	2	1	0	From same direction - both going straight - one stopped - rear-end	Exceeding Reas. Safe Speed	Clear or Partly Cloudy	Daylight
15051	1.413	SALZER VALLEY RD	2009563	10/15/2005	427	2	1	1	0	Fixed object	Other	Overcast	Daylight
91007	1.213	SALZER VALLEY RD	2255151	06/01/2006	2109	1	1	0	0	Fixed object	Exceeding Stated Speed Limit	Raining	Daylight
91007	0.862	SALZER VALLEY RD	2563514	09/24/2006	2109	2	1	2	0	Fixed object	Exceeding Reas. Safe Speed	Clear or Partly Cloudy	Dark-Street Lights Off
91007	1.036	SALZER VALLEY RD	2673351	11/02/2006	2109	2	2	1	0	From same direction - both going straight - both moving - rear-end	Exceeding Reas. Safe Speed	Raining	Daylight
15051	1.610	SALZER VALLEY RD	2673410	12/27/2006	427	2	1	1	0	Fixed object	Exceeding Reas. Safe Speed	Clear or Partly Cloudy	Daylight
15051	1.400	SALZER VALLEY RD	2672786	01/16/2007	427	1	1	0	0	Fixed object	Exceeding Reas. Safe Speed	Overcast	Dark-No Street Lights
15051	4.900	SALZER VALLEY RD	2815666	10/04/2007	264	1	1	0	0	Fixed object	Other Driver Distractions Inside the Vehicle	Clear or Partly Cloudy	Dark-No Street Lights
91007	0.810	SALZER VALLEY RD	2521860	11/09/2007	2109	1	1	0	0	Fixed object	Unknown Driver Distraction	Raining	Dark-No Street Lights
91007	1.310	SALZER VALLEY RD	2815854	12/05/2007	2109	1	1	0	0	Fixed object	Improper Turn	Clear or Partly Cloudy	Dark-No Street Lights
91007	1.310	SALZER VALLEY RD	2522241	04/08/2008	2109	1	1	0	0	Vehicle overturned	Exceeding Reas. Safe Speed	Overcast	Daylight
15051	4.590	SALZER VALLEY RD	2956930	08/04/2008	264	1	1	0	0	Vehicle overturned	Inattention	Clear or Partly Cloudy	Unknown
91007	1.310	SALZER VALLEY RD	E009354	10/25/2008	2109	1	1	0	0	Fixed object	Under Influence of Alcohol	Clear or Partly Cloudy	Dark-No Street Lights
91007	1.170	SALZER VALLEY RD	2598134	11/01/2008	2109	1	1	0	0	Vehicle overturned	Exceeding Reas. Safe Speed	Raining	Dark-No Street Lights
91007	1.055	SALZER VALLEY RD	2673185	11/11/2008	2109	2	1	1	0	Fixed object	Exceeding Reas. Safe Speed	Overcast	Daylight
91007	0.621	SALZER VALLEY RD	E020834	05/28/2009	2109	2	1	1	0	Not stated	Under Influence of Drugs	Clear or Partly Cloudy	Daylight
91007	1.263	SALZER VALLEY RD	E033272	11/10/2009	2109	1	2	0	0	Entering at angle	Did Not Grant ROW to	Raining	Daylight

08/31/2015

Collision Summary

Rd # MP 1-813 **Rd Name** SALZER VALLEY RD
Report # E436282 **Date** 06/17/2015 **ADT** 427 **Sev** 2 **# Veh** 1 **# Inj** 2 **# Fatal** 0 **Collision Type** Fixed object
Unit 1 CC Under Influence of Alcohol **Weather** Clear or Partly Cloudy **Light** Daylight




 LEVY COUNTY
 Department of Public Works
 2000 NW HENRIETY AVE.
 CHEROKEE, FL 32913
 FAX: (904) 246-2716

DESIGNED BY: KPM
 DRAWN BY: KPM
 CHECKED BY:
 DATE

NO.	DATE	REVISION	BY	APP.

SALZER RD CURVE ANALYSIS

(TO AASHTO STANDARDS)

SHEET
 1 OF 1





2625 1st KODJICK AVE.
 CHEHALIS WA 98532
 PHONE # (360) 768-4100
 FAX # (360) 746-0716

DESIGNED BY: NRM
 DRAWN BY: NRM
 CHECKED BY:
 DATE:

NO.	DATE	REVISION	BY	APP.

SALZER RD CURVE ANALYSIS
 (TO AASHTO STANDARDS)

SHEET
 1
 OF
 1



LEWIS COUNTY PUBLIC WORKS ENGINEERING AND TRAFFIC INVESTIGATION REPORT

IN THE MATTER OF: Evaluation of the existing speed limit on Yates Road @ M.P. 0.000 to M.P. 1.979.

REASON FOR INVESTIGATION: Initiated by the County Engineer per a request by a Lewis County Resident.

COUNTY ROAD: Yates Road (#40029) M.P. 0.000 to M.P. 1.979

TO: Tim Elsea and Road File.

FINDINGS:

- a.) Current Speed Limit : [50 MPH]
85% Prevailing Vehicle Speed: [42.8 MPH]
Average Daily Traffic: [202.2]

- b.) Physical Features:

Yates road is an Urban Local Access through road that ties into Logan Hill Road with in the City of Chehalis Urban Growth. The un-posted speed limit is 50 mph. Yates Road is curved and has undulating grade. The geometrics of the roadway within this 1.979 mile portion includes horizontal and vertical curves.

Pavement Width/Surface: (0.000 - 0.516) 28' BST with 1' gravel shoulders.
(0.516 - 1.016) 22' BST with 1' gravel shoulders.
(1.016 - 1.623) 20' BST with .5' BST shoulders.
(1.623 - 1.979) 20' ACP with no shoulders.

Yates Roads services 30 approaches and 1 private road in conjunction with Logan Hill Road and Jackson Hwy.

- c.) Accident Characteristics: There have been 8 reported accidents along Yates Road in the last 30 years. 5 of which involved injury and 3 were property damage only. None fatal. Please see the attach Collision Summary.

- d.) Remarks / Recommendations:

- a. With the analysis of Yates road having sections of adverse alignment, undulating curves, along with the USLIMITS2 Speed Zoning Report and the 85th percentile prevailing speed, it is my recommended that the speed limit on Yates road should be reduced from a non-posted 50 mph to 40 mph.

- e.) Attachments:

- a. 30 year Collision Summary from Lewis County Mobility Database
- b. 2015 Yates road Traffic Study data
- c. Yates Road GIS map
- d. USLIMITS2 Speed Zoning Report



Tim Elsea P.E.
Lewis County Traffic Engineer



A>B : East
 B>A : West
 MP. : 0.695

Site: Yates Rd
 Tuesday, 05/26/2015 9:30 AM -
 Thursday, 05/28/2015 11:45 AM

Volume Grand Totals

Average Hourly Volumes

	A>B	B>A	Combined
12:00 AM	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0
2:00 AM	0.0	1.0	1.0
3:00 AM	0.0	0.0	0.0
4:00 AM	1.0	0.0	1.0
5:00 AM	0.5	1.5	2.0
6:00 AM	1.0	6.0	7.0
7:00 AM	1.0	6.0	7.0
8:00 AM	8.5	10.0	18.5
9:00 AM	5.5	5.0	10.5
10:00 AM	5.0	4.7	9.7
11:00 AM	6.0	3.5	9.5
12:00 PM	9.5	6.5	16.0
1:00 PM	5.0	6.0	11.0
2:00 PM	7.5	8.0	15.5
3:00 PM	9.0	7.0	16.0
4:00 PM	11.5	6.5	18.0
5:00 PM	11.0	5.0	16.0
6:00 PM	10.0	6.0	16.0
7:00 PM	7.0	7.0	14.0
8:00 PM	4.0	2.5	6.5
9:00 PM	3.0	0.5	3.5
10:00 PM	3.0	0.0	3.0
11:00 PM	0.0	0.5	0.5

Average Daily Traffic (ADT) 109.0 93.2 202.2

Volume Totals

	A>B	B>A	Combined
	226	193	419
	53.9 %	46.1 %	

A>B : East
 B>A : West
 MP : 0.695

Classification Grand Totals

Interval Start	Hourly Averages											Daily Average		
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double		<6 Axle Multi	6 Axle Multi
12:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	2.0	0.0	1.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	7.0	0.0	5.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	7.0	0.0	3.5	1.5	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	18.5	0.0	10.0	7.0	0.0	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	10.5	0.0	3.5	3.0	0.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	9.7	0.0	7.0	1.7	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	9.5	0.0	2.5	3.0	0.0	1.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	16.0	0.0	11.5	3.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	11.0	0.0	5.0	3.0	0.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	15.5	0.0	5.5	7.5	0.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	16.0	0.5	9.5	3.5	0.0	2.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	18.0	0.5	12.5	2.5	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	16.0	0.0	8.0	6.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	16.0	0.0	8.0	5.5	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	14.0	0.0	9.5	3.5	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	6.5	0.0	3.0	2.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	3.0	0.0	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	3.0	0.0	2.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	202.2	1.0	114.5	59.7	1.5	22.2	1.8	0.5	1.0	0.0	0.0	0.0	0.0	0.0

Study Grand Totals

Combined	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Combined	414	2	236	121	3	45	4	1	2	0	0	0	0	0
A>B	223	0.5%	57.0%	29.2%	0.7%	10.9%	1.0%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
B>A	191	0.0%	58.6%	25.7%	1.0%	12.6%	1.0%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%

A>B : East
 B>A : West
 MP : 0.695

Speed Grand Totals

mph	Hourly Averages										Combined		
	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60		60 - < 65	65 - < 70
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	1.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	2.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	7.0	0.0	0.0	0.5	0.0	0.0	2.0	2.0	1.5	0.0	0.0	0.0	0.0
7:00 AM	7.0	0.0	0.0	0.0	0.0	0.0	2.5	2.0	1.5	0.0	0.0	0.0	0.0
8:00 AM	18.5	0.5	1.5	3.5	5.5	5.5	2.0	2.0	0.5	0.0	1.0	0.0	0.0
9:00 AM	10.5	0.0	0.0	2.5	1.5	1.0	1.0	1.0	0.5	0.0	0.0	0.0	0.0
10:00 AM	9.7	0.0	0.0	2.0	2.0	2.0	1.7	3.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	8.5	0.0	0.0	3.0	1.5	2.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0
12:00 PM	16.0	0.0	0.0	1.5	5.0	5.0	4.0	1.5	0.5	0.0	0.0	0.0	0.0
1:00 PM	15.0	0.0	0.5	2.5	4.5	4.5	2.5	0.5	0.0	0.0	0.0	0.0	0.0
2:00 PM	15.5	0.5	0.5	1.0	3.5	3.0	3.0	5.5	0.5	0.0	0.0	0.0	0.0
3:00 PM	18.0	0.0	0.0	2.0	3.5	4.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	18.0	0.5	1.0	2.0	5.5	3.0	3.0	5.0	0.0	0.0	0.0	0.5	0.0
5:00 PM	16.0	0.5	0.5	2.0	5.5	1.5	3.5	1.5	1.0	0.0	0.0	0.0	0.0
6:00 PM	16.0	0.5	1.0	1.0	4.0	5.0	5.0	3.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	14.0	0.0	0.0	3.0	4.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	6.5	0.0	0.0	0.5	1.0	1.5	2.0	2.0	1.0	0.0	0.0	0.0	0.0
9:00 PM	3.5	0.0	0.0	1.0	1.0	1.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0
10:00 PM	3.0	0.0	0.0	0.0	0.5	2.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Daily Average	202.2	2.5	3.5	6.7	31.0	51.5	47.2	44.0	6.0	1.0	1.0	0.5	0.0

Pace Range 28.7 - 38.7 mph 217 vehicles (52.4%)

Average (Mean) 35.6 mph Minimum 10.1 mph Maximum 69.5 mph

Percentile Speeds (mph) 10% 15% 50% 85% 90%
 26.2 28.8 35.5 42.8 44.2

Speeds Exceeded 25 mph 35 mph 45 mph 55 mph 65 mph 75 mph
 93.7% (388) 52.9% (219) 7.7% (32) 1.2% (5) 0.2% (1) 0.0% (0)

Study Grand Totals

	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200
Total	5	7	14	64	105	96	91	15	12	2	2	1	0
Combined	1.2%	1.7%	3.4%	15.5%	25.4%	23.2%	22.0%	3.5%	2.9%	0.5%	0.5%	0.2%	0.0%
A>B	2	3	5	38	66	53	43	4	7	0	1	1	0
	0.9%	1.3%	2.2%	17.0%	29.6%	23.8%	19.3%	1.8%	3.1%	0.0%	0.4%	0.4%	0.0%
B>A	3	4	9	26	39	43	48	11	5	2	1	0	0
	1.6%	2.1%	4.7%	13.6%	20.4%	22.5%	25.1%	5.8%	2.6%	1.0%	0.5%	0.0%	0.0%

A>B : North
 B>A : South
 MP. : 1.700

Site: Yates Rd
 Tuesday, 05/26/2015 8:30 AM -
 Thursday, 05/28/2015 10:45 AM

Volume Grand Totals

Average Hourly Volumes

	A>B	B>A	Combined
12:00 AM	0.0	0.0	0.0
1:00 AM	0.0	1.0	1.0
2:00 AM	0.0	0.0	0.0
3:00 AM	1.0	0.0	1.0
4:00 AM	0.5	2.0	2.5
5:00 AM	2.0	2.5	4.5
6:00 AM	2.5	3.5	6.0
7:00 AM	3.0	3.5	6.5
8:00 AM	3.5	4.5	8.0
9:00 AM	4.3	2.3	6.7
10:00 AM	3.0	1.0	4.0
11:00 AM	5.0	4.5	9.5
12:00 PM	5.0	4.5	9.5
1:00 PM	6.0	5.5	11.5
2:00 PM	8.0	5.0	13.0
3:00 PM	7.0	5.5	12.5
4:00 PM	7.5	5.5	13.0
5:00 PM	5.5	2.0	7.5
6:00 PM	5.0	6.0	11.0
7:00 PM	3.5	2.0	5.5
8:00 PM	1.5	0.5	2.0
9:00 PM	1.0	0.0	1.0
10:00 PM	0.0	0.5	0.5
11:00 PM	0.0	0.0	0.0
Average Daily Traffic (ADT)	74.8	61.8	136.7

Volume Totals

	A>B	B>A	Combined
	155	128	283
	54.8 %	45.2 %	

A>B : North
 B>A : South
 MP : 1.700

Classification Grand Totals

Interval Start	Hourly Averages											Daily Average		
	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double		<6 Axle Multi	6 Axle Multi
12:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	2.5	0.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	4.5	0.0	4.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	6.0	0.0	2.5	1.5	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	6.5	0.0	1.5	4.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	8.0	0.0	1.5	3.0	0.0	2.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	6.7	0.0	4.2	2.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	4.0	0.0	1.0	1.0	0.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	9.5	0.0	5.5	2.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	9.5	0.0	4.0	4.0	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	11.5	0.0	3.0	5.5	0.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	13.0	0.5	8.0	2.5	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	12.5	0.5	9.0	2.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
4:00 PM	13.0	0.0	6.5	5.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	7.5	0.0	5.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	11.0	0.0	8.0	2.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	5.5	0.0	2.0	2.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	1.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	136.7	1.0	72.3	42.5	2.0	16.3	1.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0

Study Grand Totals

Combined	Total	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi
Combined	280	2	149	87	4	33	3	0	2	0	0	0	0	0
A>B	154	0.7 %	53.2 %	31.1 %	1.4 %	11.8 %	1.1 %	0.0 %	0.7 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
B>A	126	1.3 %	50.6 %	35.7 %	1.3 %	9.7 %	1.3 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
		0.0 %	56.3 %	25.4 %	1.6 %	14.3 %	0.8 %	0.0 %	1.6 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

A>B : North
 B>A : South
 MP : 1.700

Speed Grand Totals

mph	Hourly Averages										Combined		
	0- <15	15- <20	20- <25	25- <30	30- <35	35- <40	40- <45	45- <50	50- <55	55- <60		60- <65	65- <70
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Average	136.7	1.5	3.0	10.0	10.5	23.2	39.8	23.2	17.5	4.0	3.0	0.5	0.0

Pace Range 31.9 - 41.9 mph 139 vehicles (49.6 %)

Average (Mean) 37.1 mph
 Minimum 12.9 mph
 Maximum 67.7 mph

Percentile Speeds (mph)
 10% 24.4
 50% 36.7
 85% 46.0
 90% 47.8

Speeds Exceeded
 25 mph 89.3 % (250)
 35 mph 63.9 % (179)
 45 mph 18.2 % (51)
 55 mph 2.9 % (8)
 65 mph 0.4 % (1)
 75 mph 0.0 % (0)

Study Grand Totals

mph	Hourly Averages										Combined		
	0- <15	15- <20	20- <25	25- <30	30- <35	35- <40	40- <45	45- <50	50- <55	55- <60		60- <65	65- <70
Total	3	6	21	22	49	81	47	35	8	6	1	0	0
Combined	1.1 %	2.1 %	7.5 %	7.9 %	17.5 %	28.9 %	16.8 %	12.5 %	2.9 %	2.1 %	0.4 %	0.4 %	0.0 %
A>B	2	2	11	11	28	44	32	16	3	4	1	0	0
B>A	1	4	10	11	21	37	15	19	5	2	0	1	0
	0.8 %	3.2 %	7.9 %	8.7 %	16.7 %	29.4 %	11.9 %	15.1 %	4.0 %	1.6 %	0.0 %	0.8 %	0.0 %

USLIMITS2 Speed Zoning Report

Project Name: Yates Road

Analyst: Ray Shipman

Date: 02-02-2016

Basic Project Information

Project Number: 40029
Route Name: Yates Road
From: Jackson Hwy
To: Logan Hill
State: Washington
County: Lewis County
City: Chehalis city
Route Type: Road Section in Developed Area
Route Status: Existing

Crash Data Information

Crash Data Years: 20.00
Crash AADT: 202 veh/day
Total Number of Crashes: 3
Total Number of Injury Crashes: 0
Section Crash Rate: 103 per 100 MVM
Section Injury Crash Rate: 0 per 100 MVM
Crash Rate Average for Similar Roads: 366
Injury Rate Average for Similar Roads: 101

Roadway Information

Section Length: 1.979 mile(s)
Statutory Speed Limit: 50 mph
Adverse Alignment: Yes
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Residential-Collector
Number of Driveways: 31
Number of Signals: 0

Traffic Information

85th Percentile Speed: 43 mph
50th Percentile Speed: 36 mph
AADT: 202 veh/day
On Street Parking and Usage: Not High
Pedestrian / Bicyclist Activity: Not High

Recommended Speed Limit:



Note: Sections with adverse alignments may need specific 'advisory speed warnings' which may be different from the general speed limit for the section. See [Procedures for Setting Advisory Speeds on Curves](#), Publication No. FHWA-SA-11-22, June 2011, for more guidance.

Collision List

40029	YATES RD	Jur	FFC
0.160	Crash	08/24/1990	- 421149 - Injury
0.400	Crash	01/13/1997	- 0086551 - Prop Dam Only
0.450	Crash	02/11/1994	- 042326 - Injury
1.000	Crash	04/17/1986	- 334903 - Prop Dam Only
1.000	Crash	08/20/2000	- 471536 - Injury
1.000	CLAS Collision	12/05/2007	- 2815696 - Injury
1.190	Crash	12/16/1994	- 511864 - Prop Dam Only
1.922	CLAS Collision	09/15/2014	- E357339 - Injury